The lead writers of the Common Core Mathematics Standards?

Mr. Phil Daro

Dr. W. McCallum

Dr. Jason Zimba

Only Mr. Phil Daro, whose college background was in English, had any previous experience writing math standards

And it was an unmitigated disaster. He was the lead author of the 1992 California Math Framework, that precipitated the math wars and forced the California state legislature to have them entirely rewritten.

Not satisfied with his results in California he led the original writing teams for the Georgia and New Jersey Math Standards, and both had to be completely redone as well.

Both McCallum and Zimba had their Ph.D.'s in mathematics, but neither one had prior experience writing mathematics standards

Perhaps this goes a long way toward explaining the startling number of outright mathematical errors and errors in judgment that permeate the Common Core Mathematics Standards.

To give you some idea, a list of the most basic missing mathematics standards and some of the many errors in judgment has been made available as a handout.

NEW MATH

Written + performed by Tom Lehrer

Animated by Jared Khan

Here's an example (third grade – Common Core – over one year behind):

Example Subtract 38 from 325 by counting up. Write the smaller number, 38, and count up to 325. Circle each number that you count up.

38	
+ (2)	Count up to the nearest 10.
40	
+ (60)	Count up to the nearest 100.
100	
+ (200)	Count up to the largest possible hundred.
300	
+ (25)	Count up to the larger number.
325	

Then, add the numbers you circled: 2 + 60 + 200 + 25 = 287

You counted up by 287.

$325 - 38 = 287$

And here are the Anguished Parent's Comments

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The traditional method of subtracting, borrowing and carrying numbers, is derisively called the "Granny Method." The new method makes no freaking sense to either my third grader or my wife.

Let's Look at the key Associated Standards (first grade):

1.AO.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart,and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

1.AO.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship Between addition and subtraction (e.g., knowing that 8 + 4 = 12, one Knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + =13).

And their key Associated Standards (first grade):

1.AO.7. Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*

1.AO.8. Determine the unknown whole number in an addition or subtraction equation relating to three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*

Let's Parse these Standards and see if the Parent's Claims are Correct:

1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as

counting on;	
making ten:	e.g., 8+ 6 = 8 + 2 + 4 = 10 + 4 = 14;
decomposing a number leading to a ten	e.g., 13 - 4 = 13 - 3 - 1 = 10 - 1 = 9;
using the relationship between addition and subtraction	e.g., knowing that 8 + 4 = 12, one knows 12 - 8 = 4;
and creating equivalent but easier or known sums	e.g., adding 6 + 7 by creating the known equivalent (6 + 6 + 1 = 12 + 1 = 13).

AND

1.OA.1. Use addition and subtraction within 20 to solve word problems involving situations of

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with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

BUT WE SHOULD NOT FORGET THE ASSOCIATED STANDARD:

1.OA.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.

For example, which of the following equations are true and which are false?

$$\begin{aligned} 6 &= 6, \\ 7 &= 8 - 1, \\ 5 + 2 &= 2 + 5, \\ 4 + 1 &= 5 + 2. \end{aligned}$$

BUT EVEN MORE HORIFYING: THERE REMAIN 17 ALMOST EQUALLY INAPPROPRIATE NORTH CAROLINA STANDARDS IN FIRST GRADE ALONE.

Content of Grade Level Classes in High Achieving Countries

First Grade:

CONTENTS

Detailed List of Lessons (1)

58 *Katya has 7 books on her shelf and 5 fewer books in her schoolbag. How many books does Katya have in all?*

Detailed List of Lessons (2)

The numbers from 21 to 100 (p.89)
The Meter (p.91)

79 *The children brought lengths of wire to their shop lesson, one piece 7 meters long, and the other 3 meters long. They used 8 meters of wire to make toys. How much wire was left?*

2, 3, 5, 20, 50 Kopek Coins (p.97)
Adding a Number to a Sum (begin associative law) (p.106)
Right Angles (p.109)
Subtracting a number from a Sum (p.113) $(4+3)-2 = 7-2 = 5$

167 *Solve in three different ways:* $(4+2)-1$, $(6+3)-2$, $(4+5)-3$

Detailed List of Lessons (3)

Rectangles (p.117)
Adding a Sum to a Number (p.125)

(Checking $4 + (2 + 1)$, $(4 + 2) + 1$, $(4 + 1) + 2$ *are all the same)*

Finding an Unknown Minuend (p.135)

247 *A collective farm sent to town 10 truckloads of potatoes and 2 fewer truckloads of cabbage than potatoes. How many truckloads of vegetables did the collective farm send to town?*

Detailed List of Lessons (4)

Subtracting a Sum from a Number (p.142)

Solve in many different ways $7 - (2 + 1)$

Addition Table (p.146)
Finding an Unkown Subtrahend (p.149)

327 *12 geese were feeding in a meadow. Several geese wandered off into the bushes, and 6 geese remained behind. How many geese wondered off into the bushes?*

The Square (p.155)
Magic Frames (p.165)
Magic Squares (p.172)

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"The authors of common core and the Ed schools who design her curriculum hate children very much."

I also told her that "her teachers really care about children but don't know any better."

The problems with Common Core

- The only quality control for the Common Core Standards rested in the hands of the members of the VALIDATION COMMITTEE:
- Let us see how this played out.

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Ensure that the standards were research-based; and

Add missing standards if they were needed and could be justified.

CLEARLY, the duties of the Validation Committee were to entirely oversee the development of the Common Core Standards.

NOT TRUE!!

The First Draft in Math Stopped with Algebra I

- But the announced intent and promise of the Common Core project was to prepare students for *both the workforce and for college.*
  - Just Algebra I doesn't begin to do this.
- Indeed, to my knowledge, no public four year college or university in the US would admit a student with just this preparation

I met with the main writers (except Daro) demanding much more math

- But, though they completely understood my concerns, they couldn't do anything
- It appeared that I had to convince ACHIEVE one needs more than Algebra I to be “college and career ready,” not those writers – the first indication that things were not as they had seemed.

So I met with ACHIEVE demanding much more math

- I showed them data, including the report of the National Math Panel, and what is done in the high achieving countries.
- Finally, they allowed the writers to include some geometry and the material for a weak Algebra II course, but that was it!

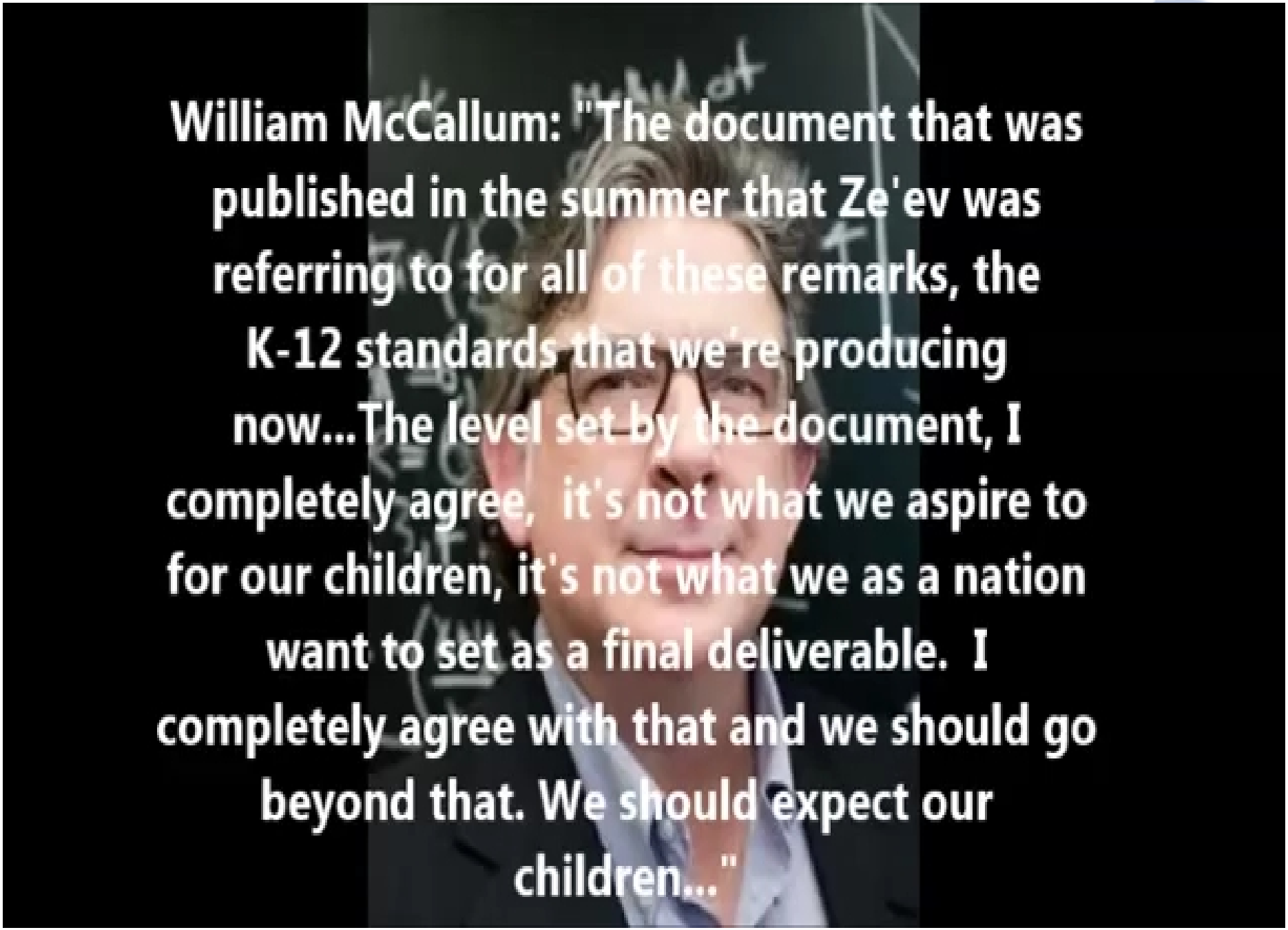
And then the Powers Behind the Throne Reacted

- Almost immediately afterward the members of the Validation Committee received a note indicating that
  - We no longer had any authority to make or even request changes in the standards.
- Instead we were asked to sign a letter asserting that the standards were excellent.

Since the standards were far from being either “excellent” or even benchmarked to the level of typical international expectations, I refused to sign the letter.

What was the Attitude of the Lead Writers (except Daro)?

- It seems that they actually felt, as I did, that the standards were woefully weak.
- Bill McCallum, Jan. 2010:
- "It's not what we aspire to for our children. It's not what we as a nation want to set as a final deliverable. I completely agree with that, and we should go beyond that."


William McCallum: "The document that was published in the summer that Ze'ev was referring to for all of these remarks, the K-12 standards that we're producing now...The level set by the document, I completely agree, it's not what we aspire to for our children, it's not what we as a nation want to set as a final deliverable. I completely agree with that and we should go beyond that. We should expect our children..."

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- "a student who passed Algebra II."

And he continued as follows:

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They are “not for STEM” and “not for selective colleges.”

The Situation is at least Equally Bad in the Higher Grades

I would like to focus on two areas, ratios, rates and proportions in middle school, and Geometry in grades 8 – 12 in particular. But there are many others where the issues are fully as serious.

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By comparison, these CRUCIAL topics already start in third grade in the high achieving countries, and by the end of sixth grade those students are far beyond what our students will ever achieve.

A Sixth Grade Example from Japan

A train crossed over a 970 m long bridge in 95 seconds. The same train took 60 seconds to pass through a 480 m long tunnel.

How long is this train?

Actually, it is a very, very unusual student in this country who can even solve this problem correctly, but in Japan, the expected time to solve it is two minutes!

The Geometry Standard on the Cutting Room Floor

In the rush to "fix" the standards so the various state departments of education would accept them, the following (very important in eighth grade) standard disappeared.

Informal arguments for area and volume formulas can make use of the way in which area and volume scale under similarity transformations: When one figure in the plane results from another by applying a similarity transformation with scale factor k, its area is k^2 times the area of the first. Similarly, volumes of solid figures scale by k^3 under a similarity transformation with scale factor k.

And for years nobody even noticed that this basic material was missing.

But that's only part of the Story

Since there was no fear of actual validation of the material, the writers felt free to change the handling of plane geometry in a very dramatic way.

It was made entirely dependent on the use of reflections, translations, and rotations in the plane.

Here are some of the Key Geometry Standards

2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
3. Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

Here are some of the Key Geometry Standards

6. Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
7. Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
8. Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.

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This is simply unrealistic.

The Problem?

This method was already tried in the old USSR – when it was among the top high achieving countries in the world – but even there the experiment was restricted to their most talented students.

It utterly failed and was abandoned after only a few years.

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It is not an exaggeration to say that the long term futures of your children depend on doing things right this time.